

A document or graphic content manipulation system and asset management system eliminate redundant instances of common text or graphical elements. Document or graphic file formats are converted to a standardized representation for subsequent processing. The standardized representations are then parsed into object oriented document components. The components are tagged for subsequent identification and linking purposes.

The parsed graphical objects and associated relationships are analyzed and compared to objects and relationships derived from other documents or items in a common multiple document or item, batch, mode import process. Additionally, objects and relationships are analyzed and compared to previously imported documents which are part of the archive.

Objects and relationships which are being imported are then analyzed and compared in accordance with user established rules and standards pertaining to object and object relationship clarification and differentiation. Objects and relationships being imported are analyzed and compared according to user established rules and standards pertaining to integrity and accuracy. Objects and relationships being imported are also analyzed and compared according to user established rules pertaining to redundant objects and object relationships.

Objects and relationships being imported can then be presented in reports in accordance with user established rules for importing objects and relationships. Objects can be manually displayed along with element properties and element property values or, document properties and document property values for manual correction, editing and reconciliation. Alternately, an automated reconciliation process can be executed for correcting and editing objects and relationships being imported. Finally, the reconciled objects and relationships can be moved from the importing repository to the archive for subsequent retrieval and use.

When the objects and relationships are entered into the archive, the relationships between various components are maintained. As a result, operators are able to view and manipulate document components and the content thereof either as part of a composite document or as separate document elements. Subsequently, the objects and items in the archives can be edited on a singular basis

while effecting multiple linked documents or graphical items which are concurrently in the archive.

The process provides for automatic application of work effort on a single instance of a graphical object which will have a common effect across multiple documents or multiple graphical items throughout the archive. Additionally, textual objects can be edited on a singular basis, and through the pre-established links in the archive, can effect a plurality of related composite output documents which are being produced, for example, packaging variations for multiple products having common ingredients or disclosure information.

The archived document, documents, or items can be recompiled by a reverse parsing process. The recompiled document(s) or item(s) can be output in any one of a plurality of industry accepted file formats for copying, printing or electronic distribution.

In an environment where the documents or graphical items represent packaging, the present invention and archive system can be used to identify cylinders and plates from previously produced packaging SKUs. The existing cylinders and plates can be used to reduce turn around time and costs in printing new packaging.

Similarly, the archive manager system can automatically identify color separation document components from previously produced packaging SKUs. These can also be used to reduce turn around time and costs in color separating new packaging.

The processing system can automatically reconcile newly executed designs with pre-established design standards and reproduction specifications. This in turn can eliminate time consuming and costly rework and print reruns.

Where the management and archive system are provided as a remotely accessible capability, as in a processing and editing service, customers or participants can concurrently work on different components of single or multiple documents while still retaining the desired minimization of redundancy. Further, recompiled documents can be output in an internet standard format where desired.

5 The system's Interpreter/Parser has two primary functions. The first of these is to analyze documents or files, which may come from a variety of different sources and which have been converted to a pre-selected file format such as a POSTSCRIPT-type such as PostScript Level 1, PostScript Level 2, PostScript Level 3, PDF, GHOSTSCRIPT, a registered trademark of Aladdin Enterprises or similar formats.

10 The Parser determines and extracts components of the standardized document or item representation according to the data construct needs of the present Graphic Object Oriented Document model. Once an archive of Graphic Object Oriented Documents has been established, users are able to achieve a number of work execution efficiencies that are not possible with conventional object oriented and non-object oriented graphics data constructs and Associated Digital Asset Management Systems.

15 The second function of the system's Interpreter/Parser is to reassemble the Graphic Object Oriented Document modeled document into composite output files in one of a plurality of industry accepted output file formats, such as POSTSCRIPT-type file formats. Manipulated modeled documents can thus be used within conventional graphics software applications, which work with only one file at time as well as to allow for the output of modeled documents to digital printers, image setters, plate makers and engravers.

20 Some of the document components provided for in the model are intended for use with the present invention's tools and user interface. Some of these components are not present in imported documents. In some cases, component data is assigned in the Interpreter/Parser to allow for the management of document components in the invention archive. Some examples of document components not necessarily available in imported documents and assigned by the Interpreter/Parser include:

- unique numerical document identity
- unique numerical document version identity
- 30 • pointer reference to all of each document's version and component fields